

**Amendments to the Claims:**

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

**Claim 1 (canceled).**

**Claim 2 (currently amended):** ~~The interface circuit according to Claim 1 characterized in that~~ An interface circuit for transferring a control signal from a small-signal circuit to a power transistor, for driving said power transistor, said interface circuit comprising a noise absorber for electrically absorbing noise voltage produced between ground of said small-signal circuit and that of said power transistor; wherein,

said noise absorber ensures that said control signal produced by said small-signal circuit is transferred to said power transistor, without being affected by said noise voltage if produced;

said noise absorber comprises one of a constant voltage dead band generator that does not allow current to flow until a certain voltage is reached, ~~[[or]]~~ and a constant current dead band generator that allows constant current to flow until a certain voltage is reached~~[[,]]~~; and

~~[[wherein]]~~ said dead band electrically absorbs the influence of said noise

voltage.

**Claim 3 (currently amended):** The interface circuit according to Claim 2 ~~characterized in that~~ wherein said noise absorber further comprises, in addition to said constant voltage dead band;

a low signal generator for generating ~~[[the]]~~ a low signal corresponding to ~~[[the]]~~ a low level of said control signal; and

a high signal generator for generating a high signal corresponding to ~~[[the]]~~ a high level of said control signal.

**Claim 4 (currently amended):** The interface circuit according to Claim 3 ~~characterized in that~~ wherein said dead band voltage  $V_c$  of said constant voltage dead band is set at a level higher than said noise voltage  $V_{noise}$ .

**Claim 5 (currently amended):** The interface circuit according to Claim 2 ~~characterized in that~~ wherein said noise absorber further comprises, in addition to said constant current dead band, a current/voltage converting circuit that generates a high signal by converting constant current into voltage when said constant current is allowed to flow by said constant current dead band.

**Claim 6 (currently amended):** ~~The interface circuit according to Claim 1 characterized by further comprising~~ An interface circuit for transferring a control signal from a small-signal circuit to a power transistor, for driving said

power transistor, said interface circuit comprising a noise absorber for electrically absorbing noise voltage produced between ground of said small-signal circuit and that of said power transistor; wherein

said noise absorber ensures that said control signal produced by said small-signal circuit is transferred to said power transistor, without being affected by said noise voltage if produced; and

said interface circuit further comprises a signal amplifier that converts the control signal outputted by said noise absorber, into [[the]] signal level for turning on or off said power transistor.

**Claim 7 (currently amended):** The interface circuit according to Claim 6 ~~characterized in that the~~ wherein a difference between power voltage VDC and logic voltage amplitude  $\Delta V_{\text{logic}}$  of said signal amplifier ( $V_{\text{DC}} - \Delta V_{\text{logic}}$ ) is set at a level higher than said noise voltage  $V_{\text{noise}}$ .

**Claim 8 (canceled).**

**Claim 9 (currently amended):** ~~The interface circuit according to Claim 8 characterized in that~~ An interface circuit for transferring a control signal to a module containing a semiconductor device, said control signal being outputted from a controller for driving said semiconductor device, wherein said interface circuit comprise:

receiving means for electrically receiving said control signal outputted from said controller;

transferring means for transferring to said module said control signal received by said receiving means, ignoring changes in the level of said control signal caused by a difference of voltage between ground potential of said controller and that of said semiconductor device;

wherein said transferring means is a noise absorber for electrically absorbing said difference of voltage.

**Claim 10 (currently amended):** The interface circuit according to Claim 9 ~~characterized in that~~ said noise absorber comprises:

a dead band generator that generates ~~[[the]]~~ one of a low voltage dead band that does not allow current to flow until a certain voltage is reached, ~~[[or]]~~ and a constant current dead band that allows constant current to flow until a certain voltage is reached, thereby absorbing said difference of voltage;

a low signal generator for generating ~~[[the]]~~ a low signal corresponding to ~~[[the]]~~ a low level of said control signal; and

a high signal generator for generating ~~[[the]]~~ a high signal corresponding to ~~[[the]]~~ high level of said control signal.

**Claim 11 (currently amended):** The interface circuit according to

Claim 10 ~~characterized in that~~ wherein the dead band voltage of said dead band generator is set at a level higher than said difference of voltage.

**Claim 12 (currently):** The interface circuit according to Claim 10 ~~characterized in that~~ wherein said noise absorber comprises a current/voltage converting circuit that generates a high signal by converting constant current into voltage when said constant current is allowed to flow by said constant current dead band generator.

**Claim 13 (currently amended):** The interface circuit according to Claim [[8]] 9 further comprising an amplifier that converts said control signal outputted by said transferring means, into the level of said semiconductor device drive signal.

**Claim 14 (currently amended):** The interface circuit according to Claim 13, wherein ~~characterized in that~~ the difference between power voltage and logic voltage amplitude of said signal amplifier is set at a level higher than said difference of voltage.

**Claim 15 (canceled).**

**Claim 16 (currently amended):** A power converter comprising:

a power transistor[[,]]; and

a small-signal circuit for driving said power transistor[[,]]; and

an interface circuit for allowing the control signal to be transferred to said power transistor from said small-signal circuit; wherein,

said interface circuit ~~comprising~~ comprises a noise absorber that electrically absorbs ~~[[the]]~~ noise voltage produced between ~~[[the]]~~ ground of said small-signal circuit and that of said power transistor, by the stray inductance of said power transistor and a power module consisting of this power transistor;

said noise absorber is operated as one of a constant voltage dead band generator that does not allow current to flow until a certain voltage is reached, and a constant current dead band generator that allows constant current to flow until a certain voltage is reached; and

~~said power converter further characterized in that~~ said noise absorber ensures that said control signal produced by said small-signal circuit is transferred to said power transistor, without being affected by said noise voltage if produced.

**Claim 17 (currently amended):** A power converter ~~according to Claim 16 characterized in that~~ comprising:

a power transistor;

a small-signal circuit for driving said power transistor; and

an interface circuit for allowing the control signal to be transferred to said

power transistor from said small-signal circuit; wherein:

said interface circuit comprises a noise absorber that electrically absorbs noise voltage produced between the ground of said small-signal circuit and that of said power transistor, by the stray inductance of said power transistor and a power module consisting of this power transistor;

said noise absorber ensures that said control signal produced by said small-signal circuit is transferred to said power transistor, without being affected by said noise voltage if produced;

said interface circuit further comprises a signal amplifier for converting the control signal outputted by said noise absorber, into the signal level for turning on or off said power transistor[.]; and [[the]]

a difference between power voltage VDC of said interface circuit and logic voltage amplitude  $\Delta V_{\text{logic}}$  of said signal amplifier ( $V_{\text{DC}} - \Delta V_{\text{logic}}$ ) is set at a level higher than said noise voltage  $V_{\text{noise}}$ .

**Claim 18 (currently amended):** [[The]] A power converter according to Claim 16 characterized in that comprising:

a power transistor;

a small-signal circuit for driving said power transistor; and

an interface circuit for allowing the control signal to be transferred to said

power transistor from said small-signal circuit; wherein:

said interface circuit comprises a noise absorber that electrically absorbs noise voltage produced between the ground of said small-signal circuit and that of said power transistor, by the stray inductance of said power transistor and a power module consisting of this power transistor;

said noise absorber ensures that said control signal produced by said small-signal circuit is transferred to said power transistor, without being affected by said noise voltage if produced;

a soft-switching gate-drive circuit for reducing the switching speed of said power transistor is arranged between said interface circuit and power transistor.

**Claim 19 (currently amended):** The power converter character according to Claim 18, wherein ~~characterized in that~~ said power transistor switching speed is set by said soft-switching gate-drive circuit in such a way that ~~[[the]]~~ a value~~[[,]]~~ obtained by multiplying the inductance  $L$  of said stray inductance by ~~[[the]]~~ a change of current  $I$  ( $dI/dt$ ) flowing through said power transistor upon gradual switching of the power transistor by means of said soft-switching gate-drive circuit, does not exceed the difference between power voltage  $V_{DC}$  of said interface circuit and logic voltage amplitude  $\Delta V_{logic}$  of said signal amplifier ( $V_{DC} - \Delta V_{logic}$ ).



**Claim 20 (original):** An electric vehicle comprising:

- a wheel drive motor;
- a power converter for converting d.c. power supplied from a d.c. power source into a.c. power, and for controlling the current supplied to said motor;
- wherein said power converter comprises:
  - a power transistor;
  - a motor small-signal circuit for driving said power transistor; and
  - an interface circuit for transferring control signals from this motor small-signal circuit to said power transistor;
- wherein said interface circuit comprises a noise absorber that electrically absorbs the noise voltage produced between the ground of said small-signal circuit and that of said power transistor, by the stray inductance of said power transistor and a power module consisting of this power transistor;
- said electric vehicle further characterized in that said noise absorber ensures that said control signal produced by said small-signal circuit is transferred to said power transistor, without being affected by said noise voltage if produced.